Environment : Emerging Problems & Management *: A comprehensive reference book related to environment and different environment problems and management for different university and under Graduate Course.*

Editorial Board

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Priyambee Swargiary

Definition of Environment

The word Environment has been derived from the French word "Environner" which means "Surrounding". Environment can be defined in a number of ways:

1] According to Environment [Protection] Act 1986, "Environment includes water, air and land and the inter-relationship which exists among and between water, air, land and human beings and other creatures, plants, micro-organism and property".

2]" Environment refers to the sum total of conditions which surround man at a given point in space and time".

Types of Environment

Environment can be classified into two types:

1] Natural Environment: The natural environment encompasses all living and non-living things occurring naturally. The components of natural environment include air, water, soil, radiation, land, forest, wildlife, flora and fauna etc.

2] Man-Made Environment: Man Made Environment comprises of the environment, which has been created by man himself for the purpose of fulfilling his needs to a great extent. It includes:

technology, transportation, housing, dam-building, communication, computerization etc.

Components of Environment

There are three components of Environment

1] Abiotic or Non-Living Component: It refers to the non-living chemical and physical parts of the environment that affect living organisms and functioning of ecosystem. It is subdivided into three components:

a] Lithosphere [Solid Earth]

b] Hydrosphere [Water Component]

c] Atmosphere [Gaseous Envelope]

2] Biotic or Living Component: It refers to the living things that affects another organism or shapes the ecosystem. It consists of flora and fauna including man as the important factor.

3] Energy Component: It includes solar energy, hydro-electrical energy, nuclear atomic energy, geo-chemical energy, nuclear atomic energy, thermo-electrical energy etc.

Research Scholar, Department of Economics, Dibrugarh University

Environmental Pollution

Over the last decades there has been increasing global concern over the public he impacts attributed to environmental pollution. Environmental pollution is defined as contamination of the physical and biological components of the earth /atmosphere syste such an extent that normal environmental processes are adversely affected ".

The word 'pollution' has been derived from the Latin word "pollutionem" [meanin defile or make dirty] is the act of polluting the environment. Pollution refers to the unfavora alteration of our environment largely because of human activities. Pollution can be categor as: Soil Pollution, Air Pollution, Noise Pollution and Water Pollution.

1] Soil Pollution:

Definition Soil Pollution

Soil Pollution is defined as the presence of toxic chemicals [pollutants or contamina in soil in high enough concentrations to pose a risk to human health and on the ecosystem

Sources of Soil Pollution:

When various types of materials are dumped especially domestic and industrial was it causes soil pollution. Domestic wastes include garbage, glass, plastics, metallic cans, pap fibres, cloth, rags, containers etc .Industrial wastes are effluents discharged from chemi industries, paper and pulp mills, textile mills, steel industries, refineries, pesticides, ceme industries etc.

Effects of Soil Pollution

Chemicals like pesticides, insecticides, acids, fungicides etc in the industrial discharg affect soil fertility by causing changes in physical, chemical and biological properties.

Some of the persistent toxic chemicals inhibit the non-target organisms, soil flora a fauna and reduce soil productivity. These chemicals accumulate in food chain and ultimate affect human health.

Nitrogen and phosphorus from the fertilizers in soil reach nearby water bodies w agricultural run-off and cause eutrophication. Chemicals or their degradation products fr soil may percolate and contaminate ground water resources.

Control of Soil Pollution

Effluents should be treated properly before discharging them on the soil.

Solid wastes should be collected properly and disposed off by the appropriate meth

Microbial degradation of biodegradable substances is another scientific approach reducing soil pollution.

2] Air Pollution:

Definition of Air Pollution

It is defined as the disequilibrium condition of air caused due to natural or manma elements.

Sources of Air Pollution

Emission of gases from kitchen, domestic heating, industries, chemicals, vehicl railways etc. Solid or particulate matter from industries, mines and urban centres. Radioact substances from nuclear plants, explosions and fuels.

Effects of Air Pollution

It causes breathing ailments like bronchitis, asthma, tuberculosis, pneumonia, lung cancer etc.

It affects the central nervous system due to carbon monoxide poisoning.

Pollution due to heavy metals like lead cause anemia, convulsions, brain damage, problems in liver kidney, circulatory and nervous and death.

Fumes of pesticides like the DDT get biomagnified and cause disorder to kidney, brain and problems of circulatory system.

Control of Air Pollution

Siting of industries after proper environmental impact assessment studies.

Using low sulphur coal in industries.

Removing particulate from exhaust gases by employing electrostatic precipitators, bag house filters etc.

Shifting to less polluting fuels.

3] Noise Pollution

Definition of Noise Pollution

It refers to the unwanted sound dumped into atmosphere leading to health hazards.

Sources of Noise Pollution

It is caused due to factories, industries, transportation, community and religious activities.

Effects of Noise Pollution

It leads to auditory fatigue or deafness and non-auditory effects are interference with speech communication, annoyance, decrease in working efficiency and physiological disorders.

Control of Noise Pollution

Legislation can help in reduction of sound production at various social functions.

Unnecessary horn blowing should be restricted especially in vehicle congested areas.

Sources of noise pollution like heavy vehicles may not be allowed to drive in the populated areas.

4] Water Pollution:

Definition of Water Pollution

It can be defined as the contamination of a stream, river, lake, ocean or any other stretch of water depleting water quality and making it toxic for the environment and humans.

Sources of Water Pollution

Discharge of domestic waste in untreated form into the water bodies mostly from urban centres.

Discharge of industrial waste in untreated form into water bodies.

Agricultural run-offs affect ground water and surface water sources as they contain pesticide and fertilizer residues.

Control of Water Pollution

Judicious use of agrochemicals like pesticides and fertilizers will reduce their surface run-off and leaching.

Use of nitrogen fixing plants to supplement the use of fertilizers.

Separate drainage of sewage and rain water should be provided to prevent overflow of sewage with rainwater.

Environmental Problems in India:

No doubt, the scientific and technological advancement has improved the quality of life but at the same time it has lead to major environmental problems. The major environmental problems which require urgent attention are discussed as follows:

1] Over Population:

The higher growth of population puts excessive pressure on natural resources and reduces the gains of development. Thus, over population is the greatest challenge that needs to be tackled urgently.

2] Poverty: Another important challenge is the existence of mass poverty. The majority of our people are directly dependent on the natural resources for their survival such as food, fuel, shelter etc. Thus, the existence of mass poverty leads to poverty.

3] Global Warming: Global warming has caused serious threat in today's world. It will lead to changes in the rainfall pattern in many areas, climatic changes causes changes in the livelihood of plans and animals thereby affecting agriculture and food production, melting of snow caps and increase in sea levels. Higher temperature and humidity will increase respiratory and skin diseases.

4] Ozone layer depletion: The thinning and depletion of the ozone layer has generated global concern over the last few years. Since the depletion of ozone layer will invite the lethal ultraviolet rays from the sun which will increase cancer [especially skin cancer] eye damage [increase in cataracts of the eyes] injure plants and animals and marine life.

5] Acid Rain: Acid rain is another major challenge. It causes respiratory problems such as eyes, nose and throat irritations. It also affects the lungs and the skin. It results in reproductive failure and killing of fish. It can cause respiratory and skin diseases. It causes deterioration of buildings especially made of marble. It damages stone statues.

Role of an Individual in prevention of pollution:

There are many environmental problem caused by human actions on the environment. Therefore it is the responsibility of every individual to contribute substantially towards the protection of the earth and provide conducive environment for itself and other species on the earth. It can be done by following some of the following suggestions:

1] Emphasis should be laid on prevention of pollution rather than on control of pollution.

2] Organic manure should be used instead of commercial inorganic fertilizers.

3] The use of wood and paper products should be reduced wherever possible.

4] The use of aerosol spray products and commercial air-freshness should be stopped.

5] Adopt and popularize renewable energy sources.

6] Use pesticides only when absolutely necessary and that too in right amounts.

7] The solid waste generated during one manufacturing process should be used as a raw material for some other processes.

8] Plantation of more trees.

9] Reduction of dependency on fossil fuel especially coal or oil.

10] The growth of population should be controlled. ◆